in-Home DISPLAY

User Manual

Conserve Energy
Protect the Environment
Save Money

AzTech ASSOCIATES INC.

D097-0600 K01

aztechIHD.com

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Regulatory Information

FCC Notices

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses and generates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm (7.88”) must be maintained between the antenna of this device and all persons. This device must not be co-located or operated in conjunction with any other antenna or transmitter.

Copyright

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Patents

This product is protected under the following patents: US Patent 8325057, China Patent 101765758, Japan Patent 5026530 and New Zealand Patent 59331. Other patents pending.

This Product is licensed under the Wireless Network Patent Portfolio, for use by a consumer or other users for which there is no remuneration. Any other users of this Product in any manner is not licensed and is expressly prohibited without a license under applicable patents in the Wireless Network Patent Portfolio, which license is available from MPEG LA, LLC, 4600 S. Ulster ST., Suite 400, Denver, Colorado 80237 U.S.A. See http://www.mpegla.com

Notices

This manual has not been created to be specific to any individual’s or organizations’ situation or needs. This manual reflects features available in the Aztech Classic In-Home display. Your display may not have all the features shown. Every effort has been made to make this manual as accurate as possible. However, there may be typographical and/or content errors.

Although efforts have been made to provide accurate electricity cost information, all electricity cost data displayed by the In-Home Display is estimated for informational and educational purposes only and not for billing. The Aztech IHD will display electricity cost information where data is supported by the utility.

Welcome

Congratulations on the purchase of your Aztech In-Home Display (IHD)! This *User Manual* provides information about the operation and features of your In-Home Display.

Your Aztech In-Home Display provides you with intuitive, actionable and timely information about your whole home electricity usage. Your display communicates wirelessly to the Smart electricity meter installed on your home to present electricity used, its estimated cost, and historical usage information. Your display is designed to provide your entire family with easy to understand information about how much electricity they are consuming and how much it costs.

Aztech understands that people learn in different ways and makes a concerted effort to use a wide range of presentation methods including lights, icons, text and graphics. To help you monitor your progress towards meeting your energy efficiency and budgetary goals, the Aztech In-Home Display provides graphics that clearly communicate not only how much electricity was consumed but when it was consumed and how much it costs. Graphical feedback provides evidence of success and identifies times of high cost or use to promote further targeted conservation action.

The In-Home Display is crowned by a patented light arc that alerts you to current electricity price and usage levels, and enables you to make immediate changes to reduce energy consumption. The light arc's easy to understand color code engages even the youngest preschooler of your household in conservation. The speed at which the colored light moves along the arc of the light arc correlates to your energy consumption (turn off an appliance and watch it slow down); and the color of the light reflects your electricity rates. Electricity rates are at their lowest when the light is green; they have risen when the light is yellow and are at their highest when the light is red.

While a 120V AC power adapter is provided to power your In-Home Display under normal operation, your display also supports battery powered operation so that you can take the display through your home and explore how the use of different appliances impact your energy use. For more information about this feature, see the Quick Read section of this manual. ***Before operating on batteries, the IHD must be plugged into AC power overnight to charge the batteries.***

This *User Manual* provides instructions for understanding how to use your Aztech In-Home Display effectively. A *Configuration Manual* for this product that describes how to set user preferences, configure the system parameters, and troubleshoot your In-Home Display is also available on http://www.aztechmeter.com/.

Features of Your In-Home Display (IHD)

Light Arc

The light arc color reflects the relative price of electricity (where supported by utility): green/ lowest; yellow/ mid; red/highest.

If your utility only uses a single price for all electricity use, the light arc will be green.

The light arc moves from left to right as energy is consumed.

The faster the movement, the more electricity you are using.

Buttons

Right button ▶:

- Press and hold to switch between the informational views and the configuration menu.
- Press to scroll between the Main, History, Summary and Message menu options.
- Press to exit the message view.

Middle button √:

- When off, press once to turn the IHD on.
- Press to initiate Quick Reads from the Main views.
- Press to switch between 24 Hour and 30 Days views within the History menu option.
- Press to reset summaries from the Summary views.

Left button ▲:

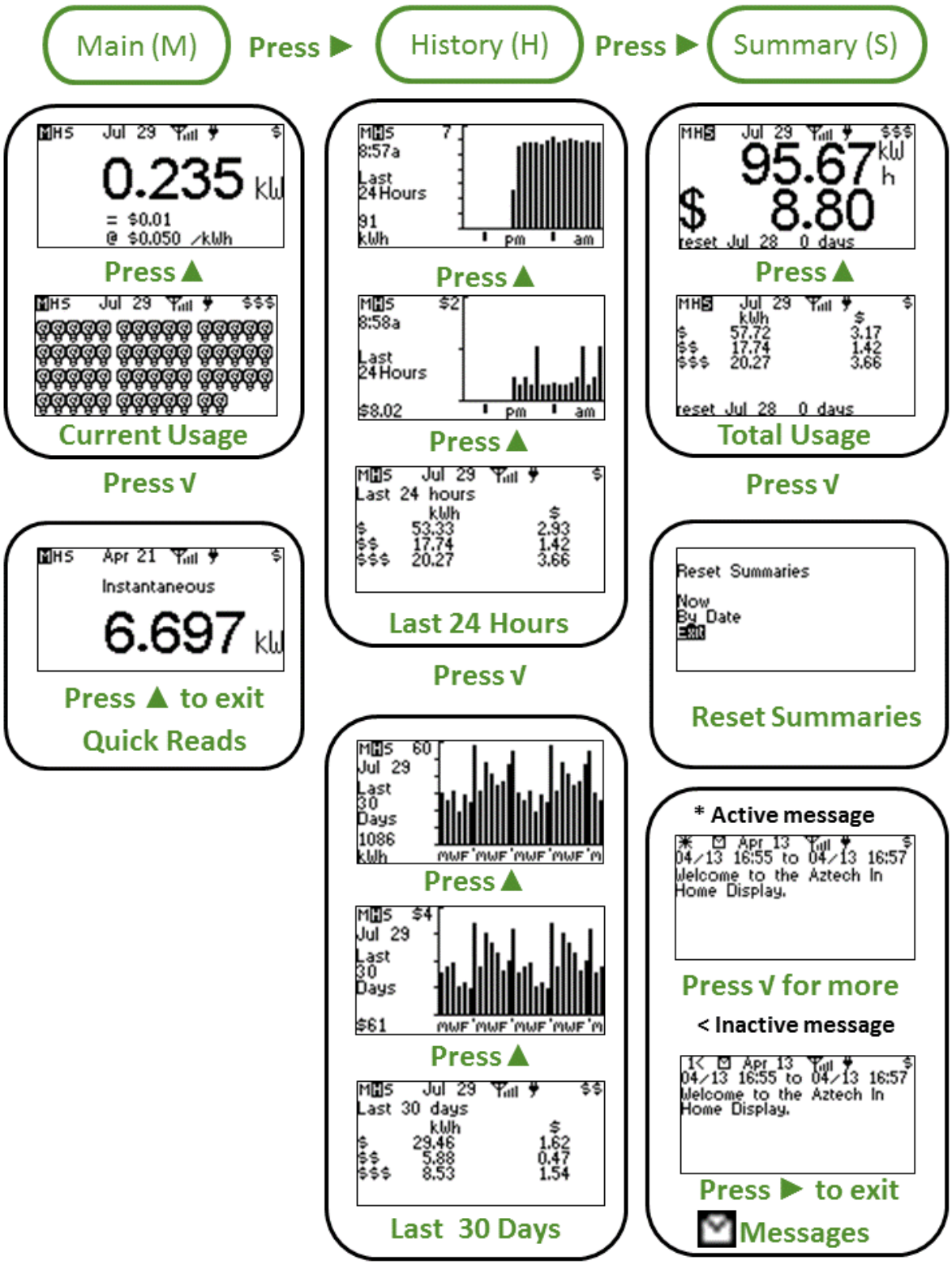
- Press to scroll through the views within the selected Main, History, Summary or Message menu option.
- Press to exit Quick Reads.
- Press to scroll through the Messages.

Status Line

MHS Main, History or Summary views – the highlighted letter indicates current view.

	Utility message information
Jul 29	Current date
Antenna Icon	Icon is displayed when your IHD connects wirelessly to your electricity meter. • When flashing, the signal strength is weak. • When there is no icon, the signal has been lost.
AC Icon	Icon indicates that the IHD is plugged in.
Battery Icon	Icon indicates that the IHD is operating on batteries.
$$$ Icon	Icon indicates the current price of electricity.

Screen Navigation



Informational Screens

Main Views (M)

The Main views, identified by the highlighted **M** in the status line on your Aztech In-Home Display, provide you with insight about your current usage.

Your IHD shows your current usage using three viewing options as shown below (Numerical, Pictorial and Quick Read).

Press the left button ▲ to switch between the numerical and pictorial views of your energy use.

In Numerical Mode

The average usage or demand (in kW) being used and its associated cost based on the current electricity rate are presented.

This information is typically updated every 30 seconds.

If there is no price information available, the bottom two lines of information will not be shown.

In Pictorial Mode

The current amount of electricity being used is depicted pictorially using light bulbs. Each light bulb represents 100 watts of electricity.

If the amount of electricity is greater than the number of light bulbs that can be displayed (60 bulbs or > 6000 W), the display will automatically revert to the numerical mode view.

This information is typically updated every 30 seconds.

Quick Reads

The quick read feature enables you to get more frequent information about your current electricity usage from your electricity meter.

To learn more about how the use of a particular appliance impacts your electricity usage, compare the reading before and after starting the appliance.

Press the middle button **∨** to start getting quick reads of your current usage from your Smart meter.

This screen will update approximately every 2 seconds for the next 15 minutes providing you with up to date information about your whole home usage.

Press the left button ▲ to return to the information screens.

History Views (H)

Your IHD presents your historical usage for the last 24 hours and for the last 30 days to enable you to detect trends in your usage patterns and to provide feedback on your energy conservation efforts over a period of time.
No information is presented for the current hour in the Last 24 Hour view or for the current day in the Last 30 Day view.

These History views can be identified by the highlighted **H** in the status line on your IHD.

The costs shown on these screens are calculated based on the energy costs ($/kWh) that were configured at time of manufacturing or by the utility via the Smart meter. *These costs are for informational purposes only and will not exactly match your electricity bill. These costs do not include any base or fixed charges on your electricity bill.*

Last 24 Hour Historical Views

Your IHD provides the ability to show your historical usage in three viewing options (Usage and Cost Modes, and Last 24 Hour Detailed View). These 24 Hour Historical views can be identified by the label '*Last 24 Hours'* on the left side of the screen. The current time is displayed just above this line for your convenience in the pictorial views.

Press the left button ▲ to scroll between the usage (kWh) view, the cost ($) view, and the detailed view of your energy consumption for the last 24 hours, excluding any data from the current hour.

24 Hour Pictorial Views

Each of the 24 vertical bars represents one hour.

As the day progresses, the screen adjusts so that the most recently completed 24 hours of data is always displayed. ***When a new bar of data is added to the right side of the screen after the completion of each hour, the oldest data is removed from the left side.***

<u>In Usage Mode</u>

Each bar represents the amount of electricity consumed in one hour.

The amount of electricity consumed for the most recently completed 24 hours is displayed on the left side of the screen near the bottom.

<u>In Cost Mode</u>

Each bar represents the cost of electricity consumed in one hour.

The cost of electricity for the most recently completed 24 hours is displayed on the left side of the screen near the bottom.

Last 24 Hour Detailed View

The last 24 hour detailed view presents how much electricity was consumed in each electricity rate tier and the respective cost in each tier. *Tiers are presented in order of increasing cost.*

Last 30 Day Historical Views

Your Aztech In-Home Display provides the ability to show your historical usage in three viewing options. These 30 Day Historical views can be identified by label *Last 30 Days* on the left side of the screen. The current date is displayed just above this line for your convenience in the pictorial views.

Press the left button ▲ to scroll between the usage (kWh), the cost ($) view and the detailed view of your energy consumption for the last 30 days, excluding any data from the current day.

30 Day Pictorial Views

Each of the 30 vertical bars represents one day.

The screen automatically adjusts such that the most recent 30 days of data are always displayed, excluding today. ***When a new bar of data is added to the right side of the screen after the completion of a day, the oldest data is removed from the left side.***

The bottom scale is marked with "MWF" to identify the Monday, Wednesday and Friday daily bars; while the bars for Saturday and Sunday are joined together to form a double bar to easily distinguish weekends.

<u>In Usage Mode</u>

Each bar represents the amount of electricity consumed in one day.

The amount of electricity consumed for the most recently completed 30 days is displayed on the bottom left side of the screen.

<u>In Cost Mode</u>

Each bar represents the cost of electricity consumed in one day.

The cost of electricity for the most recently completed 30 days is displayed on the bottom left side of the screen.

Last 30 Day Detailed View

If your home is billed on a time of use rate, your IHD can provide you with additional insights about when you consume electricity and how your electricity usage impacts your total cost.

The last 30 day detailed view presents how much electricity was consumed in each electricity rate tier and the respective cost in each tier.

Tiers are presented in order of increasing cost.

Summary Views (S)

The Summary views, identified by the highlighted **S** in the status line on your display, provide a summary of your electricity usage and cost since these summaries were reset.

When your summaries are reset, the values will begin accumulating from zero.

The costs shown on these screens are calculated based on the energy costs ($/kWh) that were configured at time of manufacturing or by the utility via the Smart meter. *These costs are for informational purposes only and will not exactly match your electricity bill. These costs do not include any base or fixed charges.*

Overall Summary

The Overall Summary presents the amount of electricity consumed and its cost since the summaries were last reset.

The date of last reset is shown at the bottom of the screen.

The number of days since the last reset is also displayed at the bottom of the screen to provide an indication of the number of days of electricity consumption.

Detailed Summary

If your home is billed on a time of use rate (TOU), your IHD can provide you with additional insights about when you consume electricity and how your electricity usage impacts your total cost.

The Detailed Summary presents how much electricity was consumed in each electricity rate tier and the respective cost for each tier since the summaries were reset. When your summaries are reset, the values will begin accumulating from zero.

The date of last reset is shown at the bottom of the screen.

Energy conservation efforts targeted to the times when the highest electricity rates are in effect have the greatest potential to impact your total cost of electricity.

If no price is available when the electricity was consumed, the energy use will be shown without a rate indicator and with no corresponding cost.

Resetting Summaries

Your IHD is typically configured to reset the Overall and Detailed Summaries on the first of every month to provide you with a monthly view of your electricity use and cost.

If you would like to choose another day of the month when your summaries will automatically reset, see the Resetting your summary views (Set Billing Date Menu) section in the Configuration Manual.

Summary Viewing Options

The Resetting Summaries option provides you with a quick way to select a time period for viewing your Overall and Detailed Summary screens so that you can analyze and understand your energy use and costs since a specific date such as:

- the beginning of the calendar week or
- since you made energy conservation changes.

Since the Resetting Summaries option is a temporary setting, you can explore your energy use and costs for different periods of time. At midnight, the Overall and Detailed Summary screens will revert to presenting information based on the recurring date specified in the Set Billing Date menu.

If you would like to see your energy use and costs since a specific date:

- press the middle **√** button from the Summary view,
- select the By Date option, and
- enter the desired date.

The reset date cannot be in the future.

The Overall and Detailed Summary screens will present your energy use and cost accumulated beginning with the date that you specified.

If you would like to monitor your energy use and costs going forward:

- press the middle **√** button from the Summary view and
- select the Now option.

The Overall and Detailed Summary screens will present your energy use and cost that accumulates starting from the time you selected this option. *At midnight, the Overall and Detailed Summary screens will revert to presenting information based on the recurring date specified in the Set Billing.*

Messages

Your IHD can store and display an active message and up to four historic messages.

A message will be active for the duration specified by the utility.

To access stored messages, use the right button to scroll through the Main, History, Summary and Message options on the status line.

The active or most recent message is shown first upon entering the Messaging view.

The start date (month and day) and time and the end date (month and day) and time for the active period are shown after the status line.

Active messages can be identified by the * symbol at the beginning of the status line.

Inactive messages can be identified by the number and the < symbol at the beginning of the status line.

Press the left button ▲ to scroll through the stored messages.

The number to the left of the < symbol identifies which of the four expired messages is being displayed. The higher the number, the older the message is.

Press the right button ► to return to the information screens.

Depending upon the priority that the utility assigns to the message, the IHD may behave differently:

- for high priority messages, the light arc may flash red and the IHD may beep multiple times;
- for medium priority messages, the light arc may flash yellow and the IHD may beep multiple times; and
- for low priority messages, the light arc may remain unchanged in its current state.